



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,449	03/08/2002	Toshihiko Ariyoshi	Q68880	1421

7590 10/27/2003  
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037

EXAMINER

KIM, RICHARD H

ART UNIT PAPER NUMBER

2871

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/092,449

Applicant(s)

ARIYOSHI ET AL.

Examiner

Richard Kim

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (US 6,266,108) in view of Mamiya et al. (US 5,764,322) and Mashino et al. (US 5,886,759).

Referring to claim 1, Bao et al. discloses a reflection type liquid crystal display apparatus comprising a light source (Fig. 1, ref. 30); and a liquid-crystal display device including a lower substrate (Fig. 1, ref. 2) provided with a reflection plate (Fig. 1, ref. 8), and upper substrate (Fig. 1, ref. 1) provided with a transparent film (Fig. 1, ref. 20) on which a light reflecting element is provided for reflecting transmitted light toward the lower substrate side (Fig. 1, ref. 21), and liquid crystal held between the lower substrate and the upper substrate (Fig. 1, ref. 3), the light source being disposed at an outer end surface of the upper substrate (Fig. 1 ref. 30), the liquid-crystal display device being configured so that light incident onto a surface of the upper substrate opposite to a contact surface of the upper substrate with the liquid crystal is reflected by the reflection plate of the lower substrate so as to exit from the surface of the upper substrate opposite to the contact surface of the upper substrate with the liquid crystal (Fig. 2, external light; col. 8, lines 29-39). However, the reference does not disclose that at least one of the end

Art Unit: 2871

surfaces of the upper substrate except the end surface on which the light source is disposed is coated with a reflection layer.

Mashino et al. discloses a device wherein at least one of the end surfaces except the end surface on which the light source is disposed is coated with a reflection layer (see Fig. 2, ref. 73).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have at least one of the end surfaces except the end surface on which the light source is disposed is coated with a reflection layer since one would be motivated to “improve the display quality by preventing light leakage in the end portion of a display window...” (abstract). Moreover, even though the reference does not disclose that the end surface of the *upper substrate* is disposed with a reflection coating, the reflection layer of Mashino is similarly coated at the end of the light guide layer. Therefore, disposing the reflection layer on the light guide layer, whether the layer is an upper substrate or lower substrate, would be obvious.

Further, the reference does not disclose than an end portion of the upper substrate is protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the protruded end surface of the upper substrate.

Mamiya et al. discloses an end of a lower substrate is protruded more than a corresponding end portion of the upper substrate so that the light source is disposed on the protruded end surface of the lower substrate (see Fig. 8, ref. 122).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the end portion of the upper substrate protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the

Art Unit: 2871

protruded end surface of the upper substrate in order to have the light source in close proximity to the transparent film, thereby allowing light to be transmitted through the film while minimizing coupling loss.

Referring to claim 2, Bao et al., Mashino et al. and Mamiya et al. disclose the device previously recited. However, Bao et al. does not disclose that the reflection layer is a reflection sheet.

Mashino et al. disclose that the reflection layer is a reflection sheet (see col. 4, lines 47-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the reflection layer to be a reflection sheet since one would be motivated to “improve the display quality by preventing light leakage in the end portion of a display window...” (abstract).

Referring to claims 7 and 8, Bao et al., Mashino et al. and Mamiya et al. disclose the device previously recited. However, Bao et al. does not disclose that a polarizer is disposed on the surface of the upper substrate opposite to the contact surface of the upper substrate with the liquid crystal, and that an end portion of the polarizer is protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the protruded end surface of the upper substrate and the polarizer.

Mamiya et al. discloses a polarizer disposed on the surface of a substrate opposite to the contact surface of the upper substrate with the liquid crystal (see Fig. 8, ref. 116) and that an end portion of the polarizer is protruded more than a corresponding end portion of the upper substrate

Art Unit: 2871

so that the light source is disposed on the protruded end surface of the lower substrate and the polarizer (see Fig. 8, ref. 116).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a polarizer disposed on the surface of a substrate opposite to the contact surface of the upper substrate with the liquid crystal and that an end portion of the polarizer is protruded more than a corresponding end portion of the lower substrate so that the light source is disposed on the protruded end surface of the upper substrate and the polarizer in order to improve the quality (ie. brightness, viewing angle) of the liquid crystal display by polarizing the light.

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al., Mashino et al. and Mamiya et al., in view of Sanai et al. (US 5,029,045).

Bao et al., Mashino et al. and Mamiya et al. disclose the device previously recited. However, the references do not disclose that a reflection plate, wherein the inner surface of the frame is made of a metal plate having a light reflection function, is provided on an inner surface of a frame so that at least one end surface of the liquid crystal display device is disposed closely on the frame.

Sanai et al. discloses a reflection plate, wherein the inner surface of the frame is made of a metal plate having a light reflection function, is provided on an inner surface of a frame (see col. 3, lines 59-68) so that at least one end surface of a liquid crystal display device is disposed closely on the frame (see col. 3, lines 63-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the reflection plate, wherein the inner surface of the frame is made of a metal plate having a light reflection function, is provided on an inner surface of a frame so that at least one end surface of the liquid crystal display device is disposed closely on the frame since one would be motivated to improve the performance of the LCD. According to Sanai et al., such a modification reduces leakage from the device and also “achieve[s] uniform luminance over all the face of the light guide” (see col. 4, lines 25-26). Moreover, whether having the reflection plate an integral part of the frame or separately attached to the frame, either modification allows for internal reflection of the transmitted light within the frame, and therefore would be functionally equivalent.

#### ***Response to Arguments***

4. Applicant's arguments filed 7 August 2003 have been fully considered but they are not persuasive.

5. In response to Applicant's argument that the cited references do not teach that an end portion of the upper substrate is protruded more than a correspond end portion of the lower substrate so that the light source is disposed on the protruded end surface of the upper substrate, Examiner asserts that whether the upper substrate is longer than the lower substrate or vice versa, typically the substrate with the light source is longer than the other one, as evident is Fukiharu (US 6,603,519 B2). Fukiharu illustrates examples of where the lower substrate is longer than the upper substrate (see Fig. 1) and the upper substrate is longer than the lower substrate (see Fig. 5).

Art Unit: 2871

Therefore it is clear that the substrate that contains the light source is typically made the longer one, and distinguishing between the two is obvious.

6. Applicant's arguments with respect to claim 1-7 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Kim whose telephone number is (703)305-4791. The examiner can normally be reached on 9:00-6:30 M-F.



Art Unit: 2871

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703)305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Richard Kim  
Examiner  
Art Unit 2871

RHK



TOANTON  
PRIMARY EXAMINER